

TEMA 4. FUNCIÓN REAL DE VARIABLE REAL

Tabla de derivadas

| | | |
|-------------------------------------|---------------|--|
| $f(x) = x^m$ | \Rightarrow | $f'(x) = mx^{m-1}$ |
| $f(x) = u(x)^m$ | \Rightarrow | $f'(x) = mu(x)^{m-1} u'(x)$ |
| $f(x) = a^x$ con $a > 0$ | \Rightarrow | $f'(x) = a^x \ln a$ |
| $f(x) = a^{u(x)}$ con $a > 0$ | \Rightarrow | $f'(x) = a^{u(x)} \ln a u'(x)$ |
| $f(x) = e^x$ | \Rightarrow | $f'(x) = e^x$ |
| $f(x) = e^{u(x)}$ | \Rightarrow | $f'(x) = e^{u(x)} u'(x)$ |
| $f(x) = \log_a x$ con $a > 0$ | \Rightarrow | $f'(x) = \frac{1}{x} \log_a e = \frac{1}{\ln a} \frac{1}{x}$ |
| $f(x) = \log_a u(x)$ con $a > 0$ | \Rightarrow | $f'(x) = \frac{1}{u(x)} \log_a e u'(x) = \frac{1}{\ln a} \frac{u'(x)}{u(x)}$ |
| $f(x) = \ln x$ | \Rightarrow | $f'(x) = \frac{1}{x}$ |
| $f(x) = \ln u(x)$ | \Rightarrow | $f'(x) = \frac{u'(x)}{u(x)}$ |
| $f(x) = \operatorname{sen} x$ | \Rightarrow | $f'(x) = \cos x$ |
| $f(x) = \operatorname{senu}(x)$ | \Rightarrow | $f'(x) = \cos u(x) u'(x)$ |
| $f(x) = \cos x$ | \Rightarrow | $f'(x) = -\operatorname{sen} x$ |
| $f(x) = \operatorname{cosu}(x)$ | \Rightarrow | $f'(x) = -\operatorname{senu}(x) u'(x)$ |
| $f(x) = \operatorname{tg} x$ | \Rightarrow | $f'(x) = \frac{1}{\cos^2 x} = 1 + \operatorname{tg}^2 x$ |
| $f(x) = \operatorname{tgu}(x)$ | \Rightarrow | $f'(x) = \frac{u'(x)}{\cos^2 u(x)} = (1 + \operatorname{tg}^2 u(x)) u'(x)$ |
| $f(x) = \operatorname{cotg} x$ | \Rightarrow | $f'(x) = \frac{-1}{\operatorname{sen}^2 x} = -(1 + \operatorname{cotg}^2 x)$ |
| $f(x) = \operatorname{cotgu}(x)$ | \Rightarrow | $f'(x) = \frac{-u'(x)}{\operatorname{sen}^2 u(x)} = -(1 + \operatorname{cotg}^2 u(x)) u'(x)$ |
| $f(x) = \operatorname{arcsen} x$ | \Rightarrow | $f'(x) = \frac{1}{\sqrt{1-x^2}}$ |
| $f(x) = \operatorname{arcsenu}(x)$ | \Rightarrow | $f'(x) = \frac{u'(x)}{\sqrt{1-u(x)^2}}$ |
| $f(x) = \operatorname{arccos} x$ | \Rightarrow | $f'(x) = \frac{-1}{\sqrt{1-x^2}}$ |
| $f(x) = \operatorname{arccosu}(x)$ | \Rightarrow | $f'(x) = \frac{-u'(x)}{\sqrt{1-u(x)^2}}$ |
| $f(x) = \operatorname{arctg} x$ | \Rightarrow | $f'(x) = \frac{1}{1+x^2}$ |
| $f(x) = \operatorname{arctgu}(x)$ | \Rightarrow | $f'(x) = \frac{u'(x)}{1+u(x)^2}$ |
| $f(x) = \operatorname{arccotg} x$ | \Rightarrow | $f'(x) = \frac{-1}{1+x^2}$ |
| $f(x) = \operatorname{arccotgu}(x)$ | \Rightarrow | $f'(x) = \frac{-u'(x)}{1+u(x)^2}$ |